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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,334	01/25/2005	Yasuhiko Nishimura	122518	8803

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EXAMINER	
LUKS, JEREMY AUSTIN	
ART UNIT	PAPER NUMBER
2837	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/522,334	NISHIMURA, YASUHIKO	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-13 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-13 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/28/07, 10/26/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3, 9, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaima (5,134,014) in view of Zinn (3,611,653), DeBlander (6,007,890). Zaima teaches a sound-absorbing structure (Figure 1, #10), comprising: a substantially flat base (18); a corrugated partition plate (12) interposed between the base (18) and a sound-absorbing material (14), the corrugated partition plate (12) having upper antinode portions opposed to the sound-absorbing material (14) and lower antinode portions opposed to the base (18), forming a plurality of recesses (see open spaces formed on both sides of partition plate (12) between the base (18) and sound-absorbing material (14)) formed in a first side thereof, each of said recesses having an opening with a predetermined shape on the first side; and a substantially flat sound-absorbing material (14) arranged substantially parallel to the base (18) and provided on the first side of the partition plate (12) to cover the openings of the recesses; and wherein the lower antinode portions of the corrugated partition plate (12) are at least partially separated from the base (18); wherein the recesses have upper portions opposed to the sound-absorbing material (14) and lower portions opposed to the

support base (18); wherein each of the recesses has a cross-sectional area that gradually varies with a depth of the recess (See Figure 1); wherein parts of the lower antinode portions of the corrugated partition plate are supported via an element (20) by low-vibration portions of the support base; and wherein the corrugated partition plate (12) includes a sine wave pattern; and wherein neighboring upper antinode portions of the corrugated partition plate (12) are in contact with the sound- absorbing material (14) (via adhesive #16). Zaima fails to teach wherein the base element is a support base; wherein at least one and less than all of the lower portions of the recesses are supported by and in contact with an elastic element by low-vibration portions of the support base, and the remaining lower portions are at least partially separated from the support base by an air gap; and wherein the thickness of air spaces behind the sound-absorbing material is set to odd multiples of one-fourth of the wavelength of sound waves of target frequencies. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the thickness of air spaces behind the sound-absorbing material set to odd multiples of one-fourth of the wavelength of sound waves of target frequencies, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233. Further, such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Zinn teaches wherein at least one of the lower portions (Figures 3 and 5, #29) of the recesses when used in combination, are supported by and

in contact with an elastic element (33) by low-vibration portions of the support base (39) when used in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Zaima, with the apparatus of Zinn to replace the adhesive #21 of Zaime with the adhesive cushion #33 of Zinn to increase sound attenuation by providing an adhesive material constructed as a cushioning element. DeBlander teaches a substantially flat support base (Figure 1, #1) (Col. 5, Lines 1-13), and wherein at least one and less than all of the lower portions of the recesses are supported by and in contact (See orientation of lower portions of core material (Figure 1, #2)) with the elastic element of Zinn, and the remaining lower portions are at least partially separated from the support base by an air gap (4). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Zaima as modified, with the apparatus of DeBlander to provide better structural support for the headliner, and improve acoustical absorption/insulation by creating a mass-spring system provided by an air gap. The Examiner further notes that DeBlander teaches that providing an air gap is well known in the art (Col. 1, Lines 15-23).

2. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaima (5,134,014) in view of Zinn (3,611,653) and DeBlander (6,007,890), as applied to claim 3, and further in view of Roller (6,186,2701). Zaima, Zinn and DeBlander are relied upon for the reasons and disclosures set forth above. Zaima further teaches a corrugated partition plate (Figure 5, #12). Nishimura further teaches second partition plate (Figure 5, #54). Zaima, Zinn and DeBlander fail to teach wherein the corrugated

partition plate includes a rectangular wave pattern; wherein the corrugated partition plate includes wave patterns with different frequencies; and wherein the corrugated partition plate includes wave patterns with different amplitudes. Roller teaches corrugated partition plate including a rectangular wave pattern (Figure 7, #2); wherein the corrugated partition (2) plate includes wave patterns with different frequencies (See varied lengths of plates defining frequencies); wherein the corrugated partition (2) plate includes wave patterns with different amplitudes (See varied heights of plates defining amplitude). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Zaima as modified, with the apparatus of Roller to absorb a wide range of frequencies and amplitudes. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233. It has been held that discovering the optimum value of a result effective variable involves only routine skill in the Art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

3. Claims 4, 6-8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaima (5,134,014) in view of Zinn (3,611,653), DeBlander (6,007,890), as applied

to claim 3, and further in view of Nishimura (JP 11-161282). Zaima, Zinn and DeBlander are relied upon for the reasons and disclosures set forth above. Zaima further teaches a sound-absorbing unit (Figure 5, #10) comprising: a corrugated partition plate (12) having a first side and a second side opposite to the first side; a substantially flat sound-absorbing material (14) provided on the first side of the corrugated partition plate (12); a second sound-absorbing material (18) provided on the second side of the corrugated partition plate (12); and wherein the corrugated partition plate (12) includes a sine wave pattern. Zaima, Zinn and DeBlander fail to teach at least one second partition plate configured to partition air spaces defined between the sound-absorbing material and the corrugated partition plate; wherein the second partition plate extends in a direction substantially perpendicular to a direction in which antinode portions of the corrugated partition plate extend; wherein the second partition plate is provided only on the first side of the corrugated partition plate; wherein the corrugated partition plate includes a wave pattern whose phase is shifted at an intersection of the corrugated partition plate and the second partition plate; wherein the corrugated partition plate includes a wave pattern whose amplitude is varied at an intersection of the corrugated partition plate and the second partition plate. Nishimura teaches at least one second partition plate (Figure 5, #54) configured to partition air spaces (acknowledged by Applicant on Page 1, Paragraph 2 of the Specification) defined between the sound-absorbing material and the corrugated partition plate when used in combination with Zaima; wherein the second partition plate (54) extends in a direction substantially perpendicular to a direction in which antinode portions of the

corrugated partition plate extend when used in combination with Zaima; wherein the second partition plate (54) is provided only on the first side of the corrugated partition plate (#42, when used in combination with Zaima); and wherein the corrugated partition plate includes a wave pattern whose phase is shifted, and amplitude varied at an intersection of the corrugated partition plate and the second partition plate (54) when used in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Zaima, with the apparatus of Nishimura to improve the sound-absorbing coefficient by dividing the air layer.

Response to Arguments

4. Applicant's arguments with respect to claims 1-13, 15 and 16 have been considered but are moot in view of the new ground(s) of rejection. The Examiner considers the obvious combination of Zaima, Zinn, DeBlander, Roller and Nishimura to teach all of the limitations as claimed by Applicant.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to sound absorbing structures and sound absorbing units are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-

2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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